

WHAT IS CLAIMED IS:

1. A method for drying a paper web comprising:  
providing a dryer having a first dryer section and a second dryer section;  
5                   drying a relatively wet paper web within said first dryer section at an elevated temperature to form a relatively dry paper web without significantly increasing the temperature of the paper web above the thermal degradation temperature of the paper web; and  
                  subsequently drying the relatively dry paper web within said 10 second dryer section at a reduced temperature in comparison to said elevated temperature.
10. A method as defined in claim 1, wherein said relatively wet paper web has a solids consistency between about 20% to about 40%.
15. A method as defined in claim 1, wherein said dryer is a through-dryer.
20. A method as defined in claim 1, wherein said relatively dry paper web has a solids consistency between about 45% to about 70%.
25. A method as defined in claim 1, wherein said elevated temperature is relatively constant within said first dryer section.
30. A method as defined in claim 1, wherein said reduced temperature is relatively constant within said second dryer section.
35. A method as defined in claim 1, wherein said elevated temperature decreases within said first dryer section.
40. A method as defined in claim 1, wherein said reduced temperature decreases within said second dryer section.
45. A method as defined in claim 1, wherein said elevated temperature ranges from about 400°F to about 500°F and said reduced temperature ranges from about 300°F to about 400°F.
50. A method as defined in claim 9, wherein said elevated

temperature ranges from about 450°F to about 500°F.

11. A method as defined in claim 9, wherein said reduced temperature ranges from about 300°F to about 350°F.

5        12. A method for drying a paper web comprising:  
providing a through-dryer having a first dryer section and a second dryer section;

10        drying a paper web having an initial solids consistency less than about 60% within said first dryer section at an elevated temperature ranging from about 400°F to about 500°F to form a paper web having a solids consistency greater than about 25% without significantly increasing the temperature of the paper web above the thermal degradation temperature of the paper web; and

15        subsequently drying the paper web having a solids consistency greater than about 25% within said second dryer section at a reduced temperature ranging from about 300°F to about 400°F.

13. A method as defined in claim 12, wherein said elevated temperature ranges from about 450°F to about 500°F.

14. A method as defined in claim 12, wherein said reduced temperature ranges from about 300°F to about 350°F.

20        15. A method as defined in claim 12, wherein said paper web dried within said first dryer section has an initial solids consistency between about 15% to about 45%.

16. A method as defined in claim 12, wherein said paper web dried within said first dryer section has an initial solids consistency between about 20% to about 40%.

25        17. A method as defined in claim 12, wherein said paper web is dried to a solids consistency greater than about 35% within said first dryer section.

18. A method as defined in claim 12, wherein said paper web is

dried to a solids consistency between about 45% to about 70% within said first dryer section.

19. A method as defined in claim 12, wherein said elevated temperature is relatively constant within said first dryer section.

5 20. A method as defined in claim 12, wherein said reduced temperature is relatively constant within said second dryer section.

21. A method as defined in claim 12, wherein said elevated temperature decreases within said first dryer section..

22. A method as defined in claim 12, wherein said reduced 10 temperature decreases within said second dryer section.

23. A method for drying a paper web comprising:  
providing a dryer having a first dryer section and a second dryer section;

15 providing a supply air stream;  
distributing the supply air stream to said first dryer section and said second dryer section;  
contacting a relatively wet paper web with the supply air stream within said first dryer section at an elevated temperature to form a relatively dry paper web;

20 contacting the relatively dry paper web with the supply air stream within said second dryer section at a reduced temperature in comparison to said elevated temperature; and

selecting from one or both of the following steps:  
i) combining a first stream of air with said supply air stream to provide said elevated temperature within said first dryer section; and  
ii) combining a second stream of air with said supply air stream to provide said reduced temperature within said second dryer section.

24. A method as defined in claim 23, wherein said elevated temperature is provided by combining said first stream of air with said

supply air stream.

25. A method as defined in claim 24, wherein said elevated temperature decreases within said first dryer section.

26. A method as defined in claim 24, wherein said elevated 5 temperature increases within said first dryer section.

27. A method as defined in claim 23, wherein said reduced temperature is provided by combining said second stream of air with said supply air stream.

28. A method as defined in claim 27, wherein said reduced 10 temperature decreases within said second dryer section.

29. A method as defined in claim 27, wherein said reduced temperature increases within said second dryer section.

30. A method as defined in claim 23, wherein said elevated temperature ranges from about 400°F to about 500°F and said reduced 15 temperature ranges from about 300°F to about 400°F.

31. A method as defined in claim 23, wherein said elevated temperature ranges from about 450°F to about 500°F.

32. A method as defined in claim 23, wherein said reduced temperature ranges from about 300°F to about 350°F.

20 33. A method as defined in claim 23, wherein said dryer is a through-dryer.